

AUTHOR INDEX

- Abbott, A. M., 300
 Abbott, W. M., 454
 Aghai, E., 60
 Ahlgren, F. F., 343
 Athreya, B. H., 262, 403
- Baldini, M. G., 49
 Barner, H. B., 413
 Beck, G. E., 410
 Beisang, A. A., 273, 343
 Belzer, F. O., 444
 Berndtson, W. E., 398
 Bordt, D. E., 352
 Braungart, D. C., 328
 Brodine, C. E., 129
 Burststein, S., 254
- Carroll, P. M., 105, 226
 Carter, J. E., 343
 Cavins, J. A., 60
 Coriell, L. L., 262, 403
 Cowman, R. A., 291
- Damjanov, I., 109
 Damjanović, V., 101
 Davies, D. F., 87
 Davies, J. D., 70
 De Wit, J. J. F. M., 136
 Dietzman, R. H., 273
 Djerassi, I., 60
 Dorman, F. D., 343
- Eyster, E., 119
- Fellowes, O. N., 234
 Fennema, O., 26, 116
 Fontana, D. J., 328
 Foote, R. H., 398
- Gage, A. A., 241
 Gardner, F. H., 42
 Garzon, A. A., 347
 Graham, E. F., 273, 343
 Greaves, R. I. N., 76
 Greene, A. E., 262, 403
 Greiff, D., 96
 Grimes, E. L., 262
- Hall, T. C., 410
 Hardenbergh, E., 336
 Heber, U., 188
 Hillman, H., 324
 Horanic, G., 281
 Humphries, A. L., Jr., 447
- Johnson, L. K., 375
- Kaper, J. K., 366
 Karlson, K. E., 347
 Karow, A. M., Jr., 429
 Kellner, A., 119
 Kennedy, J. H., 109
 Koehler, J. K., 375
 Kornberg, E., 347
 Krijnen, H. W., 136
 Kuivenhoven, A. C. J., 136
- Lehr, H. B., 262, 403
 Lepage, M., 202
 Levitt, J., 147, 278
 Lewis, J. P., 240
 Lillehei, R. C., 273
 Lin, J. H., 105, 226
 Lund, D. B., 26
 Luyet, B., 18
- Malinin, G. I., 328
 Mayo, C. H., 273
 Mazur, P., 1
 McCown, B. H., 410
 McLeester, R. C., 410
 Meryman, H. T., 144
 Meyer, R. C., 270
 Michlmayr, G., 379
 Mobliowska, I., 175
 Morrison, F. S., 29
- Nadel, E. M., 254
 Nara, A., 355
 Nath, J., 385
 Noble, J. G., Jr., 254
- O'Grady, L. F., 250
 Ostergard, D. R., 340
- Paine, G. D., 270
 Pangan, J., 347
 Patt, J. A., Jr., 385
 Pfisterer, H., 379
 Pomeroy, K., 202
 Powrie, W. D., 26, 116
 Pribor, D. B., 355
- Radulović, D., 101
 Ramsbottom, R., 336
 Rapatz, G., 18
 Rheaume, B., 202
 Rowe, A. W., 119
 Roy, A. J., 60

Sakai, A., 160
Schmidt, J. J., 1
Shorrock, J. E. T., 324
Siberg, R. A., 366
Siminovitch, D., 202
Smith, D., 148
Speck, M. L., 291
Steere, R. L., 306
Sterling, C., 393
Strumia, P. V., 58
Stuckey, J. H., 347
Sullivan, J. J., 18

Torney, H. L., 352
Townsend, D. E., 340

Valeri, C. R., 129
Van Hulle, G., 116

Webb, W. R., 423
Weber, F., 379
William, V. L., 413

Yelenosky, G., 281
Yoshida, S., 160

SUBJECT INDEX

- Abstracts of Interest, 284
- ACTH, and dexamethasone and dimethyl sulfoxide, effects on "out of strain" transplantation and lethality of leukemia L₂C/NB, 254
- Air, stabilization of CCl₃F hydrate, 116
- Anatomy, considerations in cardiac preservation, 413
- Animals, intact, distribution of C¹⁴-labeled dimethyl sulfoxide, 328
- Apparatus, rotation, for shell-freezing, 26
- Assays, viability, and cryopreservation of hearts and kidneys, 454
- Blood
 - containing cryoprotective agents, preservation of erythrocytes, 18
 - platelets, preservation, 29
 - preservation by freezing, 144
 - viscosity, at temperatures between 2 and 35°C, 324
- Book Review, 238
- Bypass, cardiopulmonary, experimental hypothermic closed chest, 109
- Calcium
 - and magnesium, effect on frozen uteri, 105
 - content of uteri, 105
- Cancer, cryosurgery, 241
- Carbon dioxide, stabilization of CCl₃F hydrate, 116
- CCl₃F hydrate, stabilization by air or carbon dioxide, 116
- Cell
 - cabbage, hardened and unhardened, effects of sulfhydryl agents on freezing resistance, 278
 - cultures, propagation of *Toxoplasma gondii* and preservation at liquid nitrogen temperatures, 270
 - epithelial, susceptibility to freeze injury, 262
 - frozen
 - current methods for processing, 129
 - preservation, 136
 - red blood, liquid nitrogen preservation for transfusion, 119
 - stem, renewal in frozen marrow, 250
 - white, preservation, 70
- Closed chest, experimental hypothermic cardiopulmonary bypass, 109
- Concentrates, platelet, survival after rapid freezing and thawing, 379
- Contractibility, myocardial, after 24-hr. hypothermic storage, 347
- Cryopreservation
 - heart, viability assays, 454
 - human leukocytes (granulocytes), current methods, 60
 - kidneys, viability assays, 454
- Cryoprotectants, biological effects, as related to cardiac preservation, 429
- Cryoprotection, and toxicity, by dimethyl sulfoxide and glycerol in sciatic nerves, 355
- Cryoprotective agents, in blood, preservation of erythrocytes, 18
- Cryosurgery
 - for cancer, 241
 - treatment of vulvar condyloma acuminata, 340
- Cultures, cell, propagation of *Toxoplasma gondii* and preservation at liquid nitrogen temperatures, 270
- Damage
 - during perfusion procedures to prepare whole organs for freezing, 273
 - frost, effects of growth regulators, 175
- Dexamethasone, and ACTH and dimethyl sulfoxide, effects on "out of strain" transplantation and lethality of leukemia L₂C/NB, 254
- Diffraction, X-ray, fresh and frozen gels, 393
- Diluents, and equilibrium time and freezing rates, effect of storage of semen, 385
- Dimethyl sulfoxide
 - and ACTH and dexamethasone, effects on "out of strain" transplantation and lethality of leukemia L₂C/NB, 254
 - and glycerol, cryoprotection and toxicity in sciatic nerves, 355
 - C¹⁴-labeled, distribution in tissues of intact animals, 328
 - protection of frozen-thawed uterus, 226
- Distribution, C¹⁴-labeled dimethyl sulfoxide, in tissues of intact animals, 328
- Double freeze, effect on tissue survival, 336
- Environment, induced changes in peroxidase zymograms, 410
- Enzymes
 - loss of activities, and freezing injury, 188
 - microbial, low temperature as environmental stress, 291
- Equilibrium time, and diluents and freezing rates, effect on storage of semen, 385
- Erythrocytes, preservation, in blood containing various cryoprotective agents, 18

- Fibroblasts, susceptibility to freeze injury, 262
- Food supply, factor in survival of frozen and thawed rotifers, 375
- Freeze-drying
Lactobacillus bifidus, predicting stability by accelerated storage test, 101
 stability of purified foot and mouth disease virus, 234
- Freeze-etching, simplification, 306
- Freeze injury
 differential susceptibility of epithelial cells and fibroblasts of human skin, 262
 in relation to loss of enzyme activities and protection against freezing, 188
- Freezing
 and thawing
 effects on serum and plasma, 87
 survival of platelet concentrates, 379
 effect on structure of viruses, 366
 preservation of blood, 144
 rate, viability quantitation of leptospores, 352
 resistance
 development and increases of protein, phospholipid, and nucleic acid, 202
 effects of sulfhydryl reagents on hardened and unhardened cabbage cells, 278
 role of sugar and related compounds, 160
 varietal chemical differences in forage plants, 148
 whole organs, damage during perfusion procedures, 273
- Freezing rates, and diluents and equilibrium time, effect on storage of semen, 385
- Frost, damage, effects of growth regulators, 175
- Frostbite, experimental, 336
- Gel
 and water relationship, in hydrophilic polymers, 393
 fresh and frozen, X-ray diffraction, 393
- Glycerol
 and dimethyl sulfoxide, cryoprotection and toxicity in sciatic nerves, 355
 protection of frozen-thawed uterus, 226
 survival of frozen spermatozoa after exposure, 398
- Granulocytes, cryopreservation, 60
- Growth regulators, effects on frost damage, 175
- Heart
 cryopreservation, viability assays, 454
 functioning rabbit, preservation in depolarized state, 403
 preservation
 anatomical and physiological considerations, 413
 biological effects of cryoprotectants, 429
 current methods, 423
- Injury, renal preservation, physiology, 300
- Interactions, of cooling velocity, temperature, and warming velocity on survival of frozen and thawed yeast, 1
- Kidney
 cryopreservation, viability assays, 454
 preservation, problems with perfusates, 447
 storage, current methods, 444
- Lactobacillus bifidus*, freeze-dried, predicting stability by accelerated storage test, 101
- Leptospores, viability quantitation, after rate freezing, 352
- Lethality, of Strain 2 guinea pig leukemia L₂C/NB and effects of ACTH, dexamethasone, and dimethyl sulfoxide, 254
- Leukocytes, human, cryopreservation, 60
- Liquid nitrogen
 preservation of red blood cells for transfusion, 119
 propagation and preservation of *Toxoplasma gondii* in cell cultures, 270
- Magnesium, and calcium, effect on frozen uteri, 105
- Marrow, frozen, stem cell renewal, 250
- Membrane structures, protein, phospholipid, and nucleic acid increases, and development of extreme freezing resistance, 202
- Myocardium, contractibility, after 24-hr hypothermic storage, 347
- Nerves, sciatic, toxicity and cryoprotection by dimethyl sulfoxide and glycerol, 355
- Nucleic acid, and protein and phospholipid increases in protoplasm and membrane structures, and development of extreme freezing resistance, 202
- Organs, whole, damage during perfusion procedures for freezing, 273
- Perfusates, for kidney preservation, problems, 447
- Perfusion, procedures to prepare whole organs for freezing, damage, 273
- Peroxidase, zymograms, environment-induced changes, 410
- Phospholipid, and protein and nucleic acid increases in protoplasm and membrane structures, and development of extreme freezing resistance, 202
- Physiology
 considerations in cardiac preservation, 413
 of renal preservation injury, 300
- Plants, forage, varietal chemical differences associated with freezing resistance, 148
- Plasma, and serum, effects of freezing and thawing, 87

- Platelet
 - concentrates, survival after rapid freezing and thawing, 379
 - preservation, 29, 58
 - current status, 49
 - problems, 42
- Polymers, hydrophilic, gel-water relationships, 393
- Preservation
 - at liquid nitrogen temperatures, and propagation of *Toxoplasma gondii* in cell cultures, 270
 - blood, by freezing, 144
 - blood platelets, 29
 - cardiac
 - anatomical and physiological considerations, 413
 - biological effects of cryoprotectants, 429
 - current methods, 423
 - functioning hearts in depolarized states, 403
 - kidney, problems with perfusates, 447
 - liquid nitrogen, of red blood cells for transfusion, 119
 - of blood cells in frozen state, 136
 - of erythrocytes in blood containing cryoprotective agents, 18
 - platelet, 58
 - current status, 49
 - problems, 42
 - renal injury, physiology, 300
 - serum-plasma, 76
 - white cells, 70
- Procedure, perfusion, preparation of whole organs for freezing, 273
- Proceedings of the Fourth Cryopreservation Conference, 413
- Proceedings of the Third Cryopreservation Conference, 29
- Propagation, of *Toxoplasma gondii* in cell cultures and preservation at liquid nitrogen temperatures, 270
- Protein, and phospholipid and nucleic acid increases in protoplasm and membrane structures, and development of extreme freezing resistance, 202
- Protoplasm, protein, phospholipid, and nucleic acid increases, and development of extreme freezing resistance, 202
- Quantitation, viability of leptospire after rate freezing, 352
- Reagents, sulfhydryl, effects on freezing resistance of hardened and unhardened cabbage cells, 278
- Renewal, of stem cell, in frozen marrow, 250
- Resistance, freezing
 - development and increases of protein, phospholipid, and nucleic acid, 202
 - effects of sulfhydryl reagents on hardened and unhardened cabbage cells, 278
 - role of sugar and related compounds, 160
 - varietal chemical differences in forage plants, 148
- Rotation, apparatus for shell-freezing, 26
- Rotifers, frozen and thawed, food supply and survival, 375
- Semen, storage, effect of diluents, equilibrium time, and freezing rates, 385
- Serum, and plasma, effects of freezing and thawing, 87
- Serum-plasma, preservation, 76
- Shell-freezing, rotation apparatus, 26
- Skin, human, storage, 262
- Spermatozoa, survival, after exposure to glycerol, 398
- Stability
 - foot and mouth disease virus after freeze-drying and storage, 234
 - of freeze-dried *Lactobacillus bifidus*, accelerated storage test, 101
- Stabilization, of CCl₃F hydrate, by air or carbon dioxide, 116
- Storage
 - accelerated test, predicting stability of *Lactobacillus bifidus*, 101
 - human skin, 262
 - hypothermic, myocardial contractibility, 347
 - kidney, current methods, 444
 - semen, effect of diluents, equilibrium time, and freezing rates, 385
 - stability of foot and mouth disease virus, 234
- Strain 2 guinea pig leukemia L₂C/NB, transplantation and lethality, effects of ACTH, dexamethasone, and dimethyl sulfoxide, 254
- Stress, environmental, low temperature and microbial enzymes, 291
- Subcooling, in wood of citrus seedlings, 281
- Sugar, and related compounds, role in variations of freezing resistance, 160
- Sulfhydryl reagents, effect on freezing resistance of hardened and unhardened cabbage cells, 278
- Survival
 - frozen and thawed rotifers, and food supply, 375
 - frozen and thawed yeast, interaction of cooling velocity, temperature, and warming velocity, 1
 - platelet concentrates, following rapid freezing and thawing, 379
 - spermatozoa, after minimum exposure to glycerol, 398
 - tissue, effect of double freeze, 336
- Susceptibility, of epithelial cells and fibroblasts to freeze injury, 262
- Symposium on Environmental Cryobiology, 147

- Temperature**
 automatic control device, 343
 between 2 and 35°C, viscosity of rat blood, 324
 interactions with cooling and warming velocity, on survival of frozen and thawed yeast, 1
 liquid nitrogen, propagation and preservation of *Toxoplasma gondii* in cell cultures, 270
 low, as environmental stress on microbial enzymes, 291
- Test**, accelerated storage, predicting stability of *Lactobacillus bifidus*, 101
- Thawing and freezing**
 effects on plasma and serum, 87
 survival of platelet concentrates, 379
- Tissue**
 of intact animals, distribution of C¹⁴-labeled dimethyl sulfoxide, 328
 survival, effect of double freeze, 336
- Toxicity**, and cryoprotection, by dimethyl sulfoxide and glycerol in sciatic nerves, 355
- Toxoplasma gondii*, propagation in cell cultures and preservation at liquid nitrogen temperatures, 270
- Transfusion**, liquid nitrogen preservation of red blood cells, 119
- Transplantation**, of Strain 2 guinea pig leukemia L₂C/NB, and effects of ACTH, dexamethasone, and dimethyl sulfoxide, 254
- Uteri**
 calcium content, 105
 frozen, effect of calcium and magnesium, 105
 frozen-thawed, protection by glycerol and dimethyl sulfoxide, 226
- Velocity**
 cooling, interactions with temperature and warming velocity on survival of frozen and thawed yeast, 1
 warming, interactions with cooling velocity and temperature on survival of frozen and thawed yeast, 1
- Viability**
 assays, and cryopreservation of hearts and kidneys, 454
 quantitation of leptospire after rate freezing, 352
- Virus**
 foot and mouth disease, stability after freeze-drying and storage, 234
 turnip yellow mosaic, effect of freezing, 366
- Viscosity**, of rat blood, at temperatures between 2 and 35°C, 324
- Vulvar condyloma acuminata**, treatment of cryosurgery, 340
- Water**, and gel relationships, in hydrophilic polymers, 393
- Wood**, citrus seedlings, subcooling, 281
- X-ray**, diffraction, fresh and frozen gels, 393
- Yeast**, frozen and thawed, interactions of cooling velocity, temperature, and warming velocity on survival, 1
- Zymograms**, peroxidase, environment-induced changes, 410

ERRATA

Vol. 3, (No. 3) March-April, 1967

Page 410 100%—should be inserted to precede each of two formulas for calculating percentage loss.

Vol. 5 (No. 1) 1968 July-August

Page 13, right column, line 4—delete "Recrystallization of"

Vol. 5 (No. 2), September-October, 1968

Page 102, column 5 in Table 1 should read "hours" instead of "days".

Vol. 5 (No. 3) November-December, 1968

Cover, and pages 175-187 "Moblidowska" should read "Modlibowska".

Vol. 5 (No. 4) Cover "Taxoplasma" should read "Toxoplasma".

Vol. 5 (No. 5) March-April 1969

Page 341. "Figure 2" should read "Figure 3", "Figure 3" should read "Figure 2".

CRYOBIOLOGY

EDITORIAL BOARD

RADOSLAV K. ANDJUS	PETER MAZUR
HENDRICK B. BARNER	JOHN W. MCTIGUE
MARY E. BURNS	THOMAS NASH
JOHN A. CAVINS	EMANUEL PALADINI
CLEMENT W. COWLEY	JOSEPH A. PANUSKA
OWEN FENNEMA	MAXIM D. PERSIDSKY
G. EDGAR FOLK, JR.	GABRIEL L. RAPATZ
ROWDON M. FRY	PAOLO ROSSOTTA
ISIDORE GERSCH	ROBERT SCHREK
GEORGE O. GEY	KENNETH W. SELL
IAN W. D. HENDERSON	FRANK E. SOUTH, JR.
THOMAS D. KELLAWAY	HAROLD L. STEWART
ROBERT G. KINDRED	OSCAR THORUP
C. T. KNORPP	FRANK E. TROBAUGH
TOKIO NEI	MONROE M. VINCENT

Editor-in-Chief: THEODORE I. MALININ

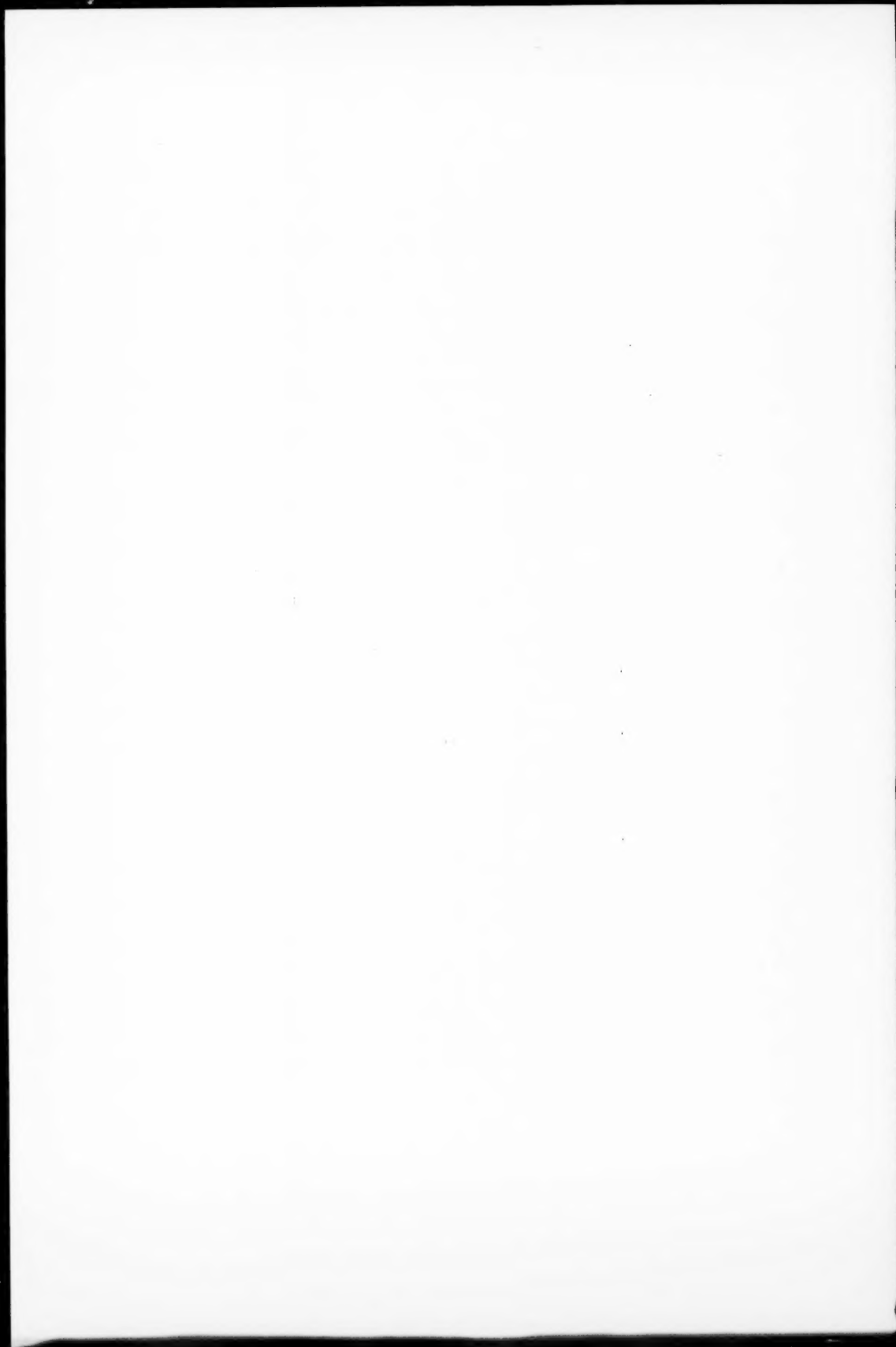
Associate Editor: VERNON P. PERRY

Abstracts Editor: ARTHUR ROWE

Volume 5, 1968-1969

SOCIETY FOR CRYOBIOLOGY

Copyright © 1969



VOLUME CONTENTS

No. 1, July-August 1968

- Interactions of Cooling Velocity, Temperature, and Warming Velocity on the Survival of Frozen and Thawed Yeast** Peter Mazur and Janice J. Schmidt 1
- Preservation of Erythrocytes in Blood Containing Various Cryoprotective Agents, Frozen at Various Rates and Brought to a Given Final Temperature**
G. Rapatz, John J. Sullivan, and B. Luyet 18

BRIEF COMMUNICATIONS

- Rotation Apparatus for Shell-Freezing** .D. B. Lund, O. Fennema, and W. D. Powrie 26

THIRD CRYOPRESERVATION CONFERENCE

- Preservation of Blood Platelets. Current Methods**Francis S. Morrison 29
- Platelet Preservation Problems**Frank H. Gardner 42
- Discussion on the Current Status of Platelet Preservation** Mario G. Baldini 49
- Platelet Preservation**Paul V. Strumia 58
- Current Methods for the Cryopreservation of Human Leukocytes (Granulocytes)**John A. Cavins, Isaac Djerassi, Esther Aghai, and Albert J. Roy 60
- The Preservation of White Cells. Discussion**J. D. Davies 70
- Serum-Plasma Preservation. Historical Review**Ronald I. N. Greaves 76
- Effects of Freezing and Thawing Serum and Plasma on Selected Quantitative Recoveries**Dean F. Davies 87
- Discussion of Papers by R. I. N. Greaves and D. F. Davies Presented for the Serum-Plasma Session**Donald Greiff 96

No. 2, September-October 1968

- Predicting the Stability of Freeze-Dried *Lactobacillus bifidus* by the Accelerated Storage Test**Vladimir Damjanović and Draginja Radulović 101
- The Effect of Calcium and Magnesium on Frozen Rat Uteri and the Calcium Content of Uteri Frozen by Various Procedures** J. H. Lin and P. M. Carroll 105

BRIEF COMMUNICATIONS

- Experimental Hypothermic Closed Chest Cardiopulmonary Bypass**
John H. Kennedy and Ivan Damjanov 109
- Stabilization of CCl_3F Hydrate by Air or Carbon Dioxide**
G. Van Hulle, O. Fennema, and W. D. Powrie 116

CRYOPRESERVATION CONFERENCE

- Liquid Nitrogen Preservation of Red Blood Cells for Transfusion. A Low Glycerol-Rapid Freeze Procedure**Arthur W. Rowe, E. Eyster, and A. Kellner 119
- Current Methods for Processing Frozen Red Cells** .C. R. Valeri and C. E. Brodine 129
- The Preservation of Blood Cells in the Frozen State. Experiences and Current Methods in the Netherlands**
H. W. Krijnen, A. C. J. Kuivenhoven, and J. J. F. M. de Wit 136
- Observations on the Present State of Blood Preservation by Freezing**
H. T. Meryman 144

No. 3, November-December 1968

SYMPOSIUM ENVIRONMENTAL CRYOBIOLOGY

- Introduction**J. Levitt 147
- Varietal Chemical Differences Associated with Freezing Resistance in Forage Plants**Dale Smith 148

The Role of Sugar and Related Compounds in Variations of Freezing Resistance	A. Sakai and S. Yoshida 160
Effects of Some Growth Regulators on Frost Damage	Irina Moblidowska 175
Freezing Injury in Relation to Loss of Enzyme Activities and Protection against Freezing	Ulrich Heber 188
Phospholipid, Protein, and Nucleic Acid Increases in Protoplasm and Membrane Structures Associated with Development of Extreme Freezing Resistance in Black Locust Tree Cells	D. Siminovitch, B. Rheaume, K. Pomeroy, and M. Lepage 202
The Protection of Frozen-Thawed Rat Uterus by Glycerol and Dimethyl Sulfoxide	P. M. Carroll and J. H. Lin 226

BRIEF COMMUNICATIONS

Stability of Purified Foot and Moth Disease Virus after Freeze-Drying and Storage	O. N. Fellowes 234
--	--------------------

BOOK REVIEW	238
--------------------	-----

No. 4, January-February 1969

Cryosurgery for Cancer. An Evaluation	Andrew A. Gage 241
Stem Cell Renewal in Frozen Marrow	Lois F. O'Grady and Jerry P. Lewis 250
Observations on an Effect of ACTH, Dexamethasone, and Dimethyl Sulfoxide (DMSO) on the "Out of Strain" Transplantation and Lethality of Strain 2 Guinea pig Leukemia L₂C/NB to Strain 13 and Hartley Animals	Eli M. Nadel, John G. Noble, Jr., and Shlomo Burstein 254
Differential Susceptibility of Epithelial Cells and Fibroblasts of Human Skin to Freeze Injury. Report on an Improved Method for Storage of Human Skin at -196°C.	Balu H. Athreya, E. L. Grimes, Herndon B. Lehr, Arthur E. Greene, and Lewis L. Corriell 262

BRIEF COMMUNICATIONS

<i>Toxoplasma gondii</i> Propagation of Cell Cultures and Preservation at Liquid Nitrogen Temperatures	G. D. Paine and R. C. Meyer 270
Damage during Perfusion Procedures Used to Prepare Whole Organs for Freezing	A. A. Beisang, R. H. Dietzman, C. H. Mayo, E. F. Graham, and R. C. Lillehei 273
The Effect of Sulfhydryl Reagents on Freezing Resistance of Hardened and Unhardened Cabbage Cells	J. Levitt 278
Subcooling in Wood of Citrus Seedlings	G. Yelenosky and G. Horanic 281

ABSTRACTS OF INTEREST	284
------------------------------	-----

No. 5, March-April 1969

Low Temperature as an Environmental Stress on Microbial Enzymes	R. A. Cowman and M. L. Speck 291
The Physiology of Renal Preservation Injury. I. Freezing Injury and Its Modification	William M. Abbott 300
Freeze-Etching Simplified	Russell L. Steere 306
The Viscosity of Rat Blood between the Temperatures of 2 and 35°C	J. E. T. Shorroek and H. Hillman 324

BRIEF COMMUNICATIONS

Distribution of C¹⁴-labeled Dimethyl Sulfoxide in Tissues of Intact Animals	George I. Malinin, Don J. Fontana, and Dale C. Braungart 328
Experimental Frostbite. The Effect of "Double Freeze" on Tissue Survival in the Mouse Foot	E. Hardenbergh and R. Ramsbottom 336

VOLUME CONTENTS

v

- The Treatment of Vulvar Condyloma Acuminata by Cryosurgery. A Preliminary Report**.....Donald R. Ostergard and Duane E. Townsend 340
- An Automatic Temperature Control Device**
J. E. Carter, A. A. Beisang, F. F. Ahlgren, F. D. Dorman, and E. F. Graham 343
- Myocardial Contractility after 24 Hours of Hypothermic (4°C) Storage**
A. A. Garzon, E. Kornberg, J. Pangan, J. H. Stuckey, and K. E. Karlson 347
- Viability Quantitation of Leptospire after Rapid and Controlled Rate Freezing**
Harry L. Torney and Dale E. Bordt 352

No. 6 May-June 1969

- Toxicity and Cryoprotection by Dimethyl Sulfoxide and by Glycerol in Isolated Frog Sciatic Nerves**.....D. B. Pribor and A. Nara 355
- The Effect of Freezing on the Structure of Turnip Yellow Mosaic Virus and a Number of Other Simple Plant Viruses. An Ultracentrifugal Analysis**
J. M. Kaper and R. Alting Siberg 366
- Food Supply is a Factor in the Survival of Frozen and Thawed Rotifers**
James K. Koehler and Lois K. Johnson 375
- In Vivo* Survival of Platelet Concentrates Following Rapid Freezing and Thawing**
H. Pfisterer, F. Weber, and G. Michlmayr 379
- Effects of Diluents, Equilibration Time, and Freezing Rates on the Storage of Ram Semen**.....John A. Patt, Jr., and J. Nath 385

BRIEF COMMUNICATIONS

- Gel-Water Relationships in Hydrophilic Polymers. X-ray Diffraction of Fresh and Frozen Gels**.....Clarence Sterling 393
- The Survival of Frozen Bovine Spermatozoa Following Minimum Exposure to Glycerol**.....W. E. Berndtson and R. H. Foote 398
- In Vitro* Preservation of Functioning Rabbit Hearts in a Depolarized State at 4°C**
B. H. Athreya, L. L. Coriell, A. E. Greene, and H. B. Lehr 403
- Environment-induced Changes in Peroxidase Zymograms in the Stems of Deciduous and Evergreen Plants**
B. H. McCown, R. C. McLeester, G. E. Beck, and T. C. Hall 410

PROCEEDINGS OF THE FOURTH CRYOPRESERVATION CONFERENCE

- Anatomical and Physiological Considerations in Cardiac Preservation**
V. L. Willman and H. B. Barner 413
- Cardiac Preservation. Current Methods**.....Watts R. Webb 423
- Biological Effects of Cryoprotectants as Related to Cardiac Cryopreservation**
Armand M. Karow, Jr. 429
- Current Methods of Kidney Storage**.....Folkert O. Belzer 444
- Problems with Various Perfusates for Kidney Preservation**
Arthur L. Humphries, Jr. 447
- Viability Assays as Applied to the Cryopreservation of Hearts and Kidneys**
William M. Abbott 454